IN THE CLAIMS:

Please find below a listing of all pending claims. The statuses of the claims are set forth in parentheses. For those currently amended claims, underlined emphasis indicates insertions and ~~strikethrough~~ font (and/or double-brackets) indicates deletions.

1.(Currently Amended) A single-photon generator, comprising:

an exciton generation part including therein a quantum dot having a band structure holding a single exciton;

an excitation part ~~for~~ generating ~~an~~ a plurality of excitons, including said single exciton, in said exciton ~~generator~~ generation part; and

a recombination control part ~~for~~ controlling a recombination timing of said single exciton in said exciton generation part; ~~and~~

~~an optical window provided in said exciton generation part so as to pass a single photon formed as a result of recombination of said exciton,~~

~~said recombination control part causing, in said exciton generation part, recombination of said exciton at longer intervals than a recombination lifetime of a exciton molecule~~

wherein said recombination control part, after generation of said plurality of excitons, causes recombination of the plurality of excitons excluding the single exciton in said exciton generation part, and subsequently changes said band

structure to cause recombination of said single exciton in said exciton generation part.

2.(Original) The single-photon generator as claimed in claim 1, wherein said exciton generation part includes a type II heterojunction in said quantum dot.

3.(Currently Amended) The single-photon generator as claimed in claim 2, wherein said quantum dot changes a composition thereof from one side of said quantum dot to ~~the other~~ another side of said quantum dot continuously.

4.(Currently Amended) The single-photon generator as claimed in claim 1, wherein said quantum dot is formed of a quantum dot grown by a S-K mode growth process.

5.(Currently Amended) The single-photon generator as claimed in claim 1, wherein said quantum dot is formed of a lamination of an InAs layer and a GaSb layer sandwiched ~~by~~ between a pair of AlAs layers, said InAs layer changing a composition thereof continuously toward said GaSb layer.

6.(Currently Amended) The single-photon generator as claimed in claim 1, wherein said recombination control part comprises an electrode provided in said exciton ~~generator~~ generation part, a voltage source ~~for~~ applying a bias voltage to

said electrode, and a switch circuit ~~for~~ controlling application of said bias voltage from the voltage source to said electrode ~~, said switch circuit supplying said bias voltage to said electrode~~ with a longer interval than a recombination lifetime of ~~said~~ an exciton molecule, wherein the exciton molecule is excited simultaneously in the exciton generation part as said plurality of excitons.

7.(Currently Amended) The single-photon generator as claimed in claim ~~6~~ 14, wherein said optical window is provided in said electrode.

8.(Currently Amended) The single-photon generator as claimed in claim 1, further comprising:

an optical gate member provided on a path of ~~said~~ a single photon, the single photon is formed as a result of the recombination of said single exciton.

9.(Currently Amended) The single-photon generator as claimed in claim 8, wherein said optical gate member is controlled by said recombination control part and passes said single photon in synchronization with the recombination of said single exciton.

10.(Original) The single-photon generator as claimed in claim 1, wherein said excitation part comprises a laser.

11.(Currently Amended) A single-photon generating method, comprising ~~the steps of~~:

forming, ~~an exciton~~ in a medium having a band structure holding a single exciton, a plurality of excitons including said single exciton; ~~and~~

~~generating a single photon by causing recombination in said exciton,~~

~~said recombination being conducted with an interval longer than a recombination lifetime of a exciton molecule in said medium~~

causing recombination of the plurality of excitons excluding said single exciton in said medium; and

changing said band structure after said causing recombination to cause recombination of said single exciton in said medium.

12.(Currently Amended) The single-photon generating method as claimed in claim 11, wherein said ~~step of~~ causing recombination ~~of said exciton~~ includes ~~a step of~~ applying an electric field to said medium.

13.(Currently Amended) The single-photon generating method as claimed in claim 11, wherein said medium includes a quantum dot of type II heterojunction.

14.(New) The single-photon generator as claimed in claim 1, further comprising:

an optical window provided in said exciton generation part so as to pass a single photon formed as a result of the recombination of said single exciton.

15.(New) The single-photon generating method as claimed in claim13, wherein said medium is formed of a quantum dot having a composition thereof, the composition being changed from one side of said quantum dot to the other side of said quantum dot continuously.

16.(New) The single-photon generating method as claimed in claim 11, wherein said quantum dot is formed of a quantum dot grown by a S-K mode growth process.

17.(New) The single-photon generating method as claimed in claim 11, wherein said quantum dot is formed of a lamination of an InAs layer and a GaSb layer sandwiched by a pair of AlAs layers, said InAs layer changing a composition thereof continuously toward said GaSb layer.

18.(New) The single-photon generating method as claimed in claim 11, wherein said causing recombination controls a recombination timing of said single exciton in said medium by controlling an application of a bias voltage from a voltage source to an electrode which is provided with respect to said medium with a longer

interval than a recombination lifetime of an exciton molecule excited simultaneously in said medium as said plurality of excitons.

19.(New) The single-photon generating method as claimed in claim 11, wherein said causing recombination controls an optical gate member provided on a path of a single photon, which is formed as a result of the recombination of said single exciton, in synchronization with the recombination of said single exciton.

20.(New) A single-photon generator, comprising:

an exciton generation part including therein a quantum dot;

an excitation part for generating an exciton in said exciton generation part;

a recombination control part for controlling recombination timing of said exciton in said exciton generation part; and

an optical window provided in said exciton generation part so as to pass a single photon formed as a result of recombination of said exciton,

said recombination control part causing, in said exciton generation part, recombination of said exciton at longer intervals than a recombination lifetime of an exciton molecule; and

wherein said quantum dot is formed of a lamination of an InAs layer and a GaSb layer sandwiched by a pair of AlAs layers, said InAs layer changing a composition thereof continuously toward said GaSb layer.